

Report from the Information Technology Group



North America Carbon Atlas Partnership

July 22, 2009 • Pittsburgh, PA

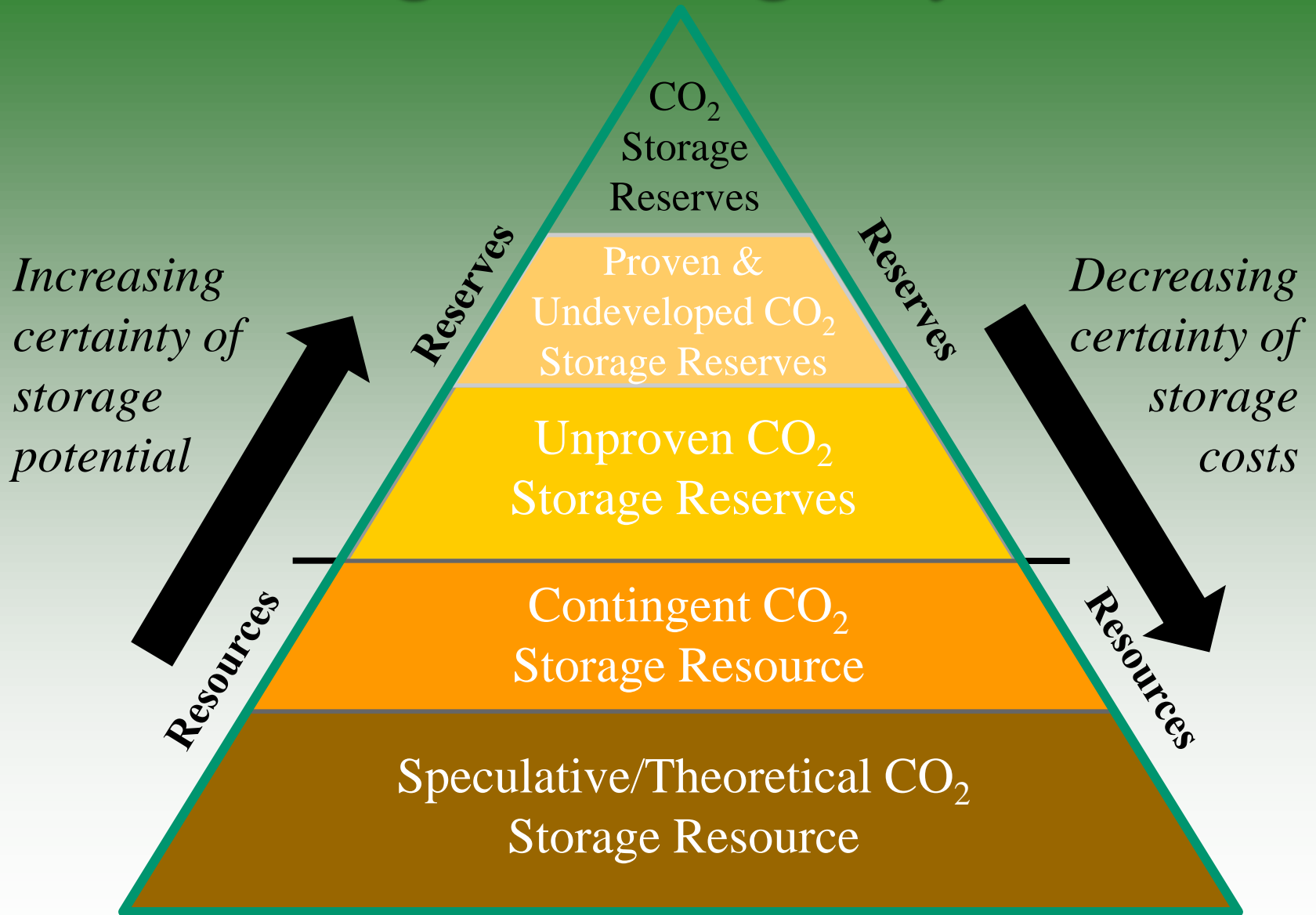
Report from the Information Technology Group



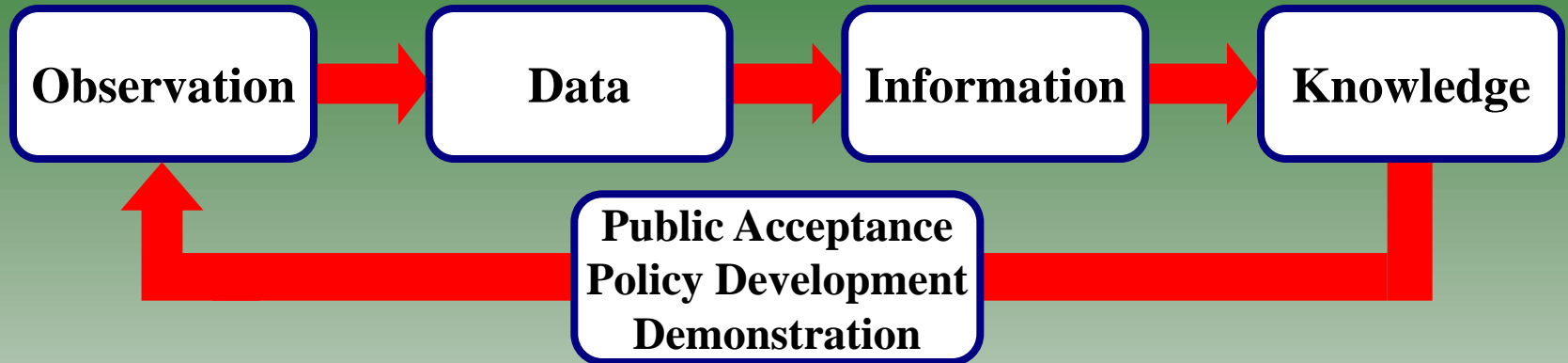
North America Carbon Atlas Partnership

July 22, 2009 • Pittsburgh, PA

Geologic Storage Pyramid



Challenges in CCS Learning Process



- Sharing Exponentially Increasing Amounts of Data
 - Heterogeneity of data, software and hardware
- Lack of Tools Dealing with Voluminous Data Sets
 - Organizing, Storing, Preserving, Retrieving, Browsing, Processing & Visualization
- Need for Time Critical Learning
 - Temporally Obsolete Knowledge for Time-Critical Applications
 - Allocation of Computational and Networking Resources
- Conduct Analyses at Regional to Global Spatial Scales
- Curation of Data and Preservation of Scientific Analyses
- Learning Process as a Collaborative Process
 - Teams, Agencies, Communities & States

Cyberinfrastructure

“Cyberinfrastructure (CI) refers to infrastructure based upon distributed computer, information and communication technology. If infrastructure is required for an industrial economy, then we could say that cyberinfrastructure is required for a knowledge economy” Atkins, 2003

CI is infrastructure vital to address the key research and technical challenges of the 21st century.

Carbon Cyberinfrastructure

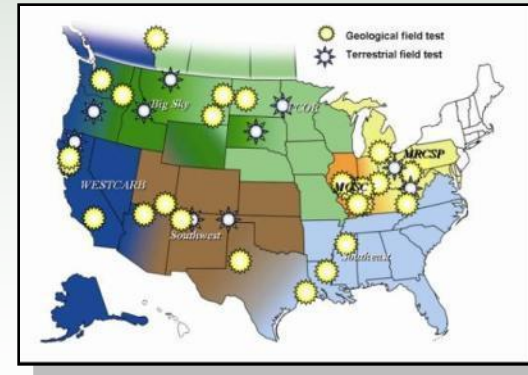
- A **Carbon Cyberinfrastructure** is a Significant Component of Carbon Sequestration Efforts
- Provides Improved Access to Data and Models, Better Integration, More Effective and Accelerated Science and Engineering, and Enhanced Decision-Making
- **Distributed Knowledge Base** Permits (Web 2.0) “Loose Coupling” of Elements of Carbon Science and Decision Support
- A Carbon Cyberinfrastructure:
 - Brings Society Together with Solutions
 - Provides Model to Manage System, Display Data, Integrate Data with Models and Manage Results
- Provides a Method to Bring the Distributed Expertise and Distributed Data Together

Geoportal Linking Partnerships

Characterize Potential for Broad-Scale Geologic Storage

Role of Distributed Online CCI:

- Carbon Atlas of Carbon Sources and Potential Sinks
- Decision Support Tools for Analysis and Visualization
- Management Support Tools to Expand Data and Model Warehouses
- Support for Field Validation
- Education and Outreach



Cyberinfrastructure as Glue



GIS Manager 1



GIS Manager 2



GIS Manager 3

Web
Server

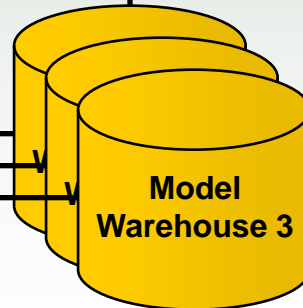
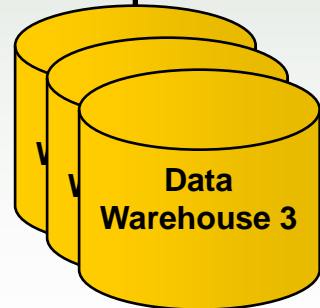


Map
Server



Metadata
Server

Knowledge Bases



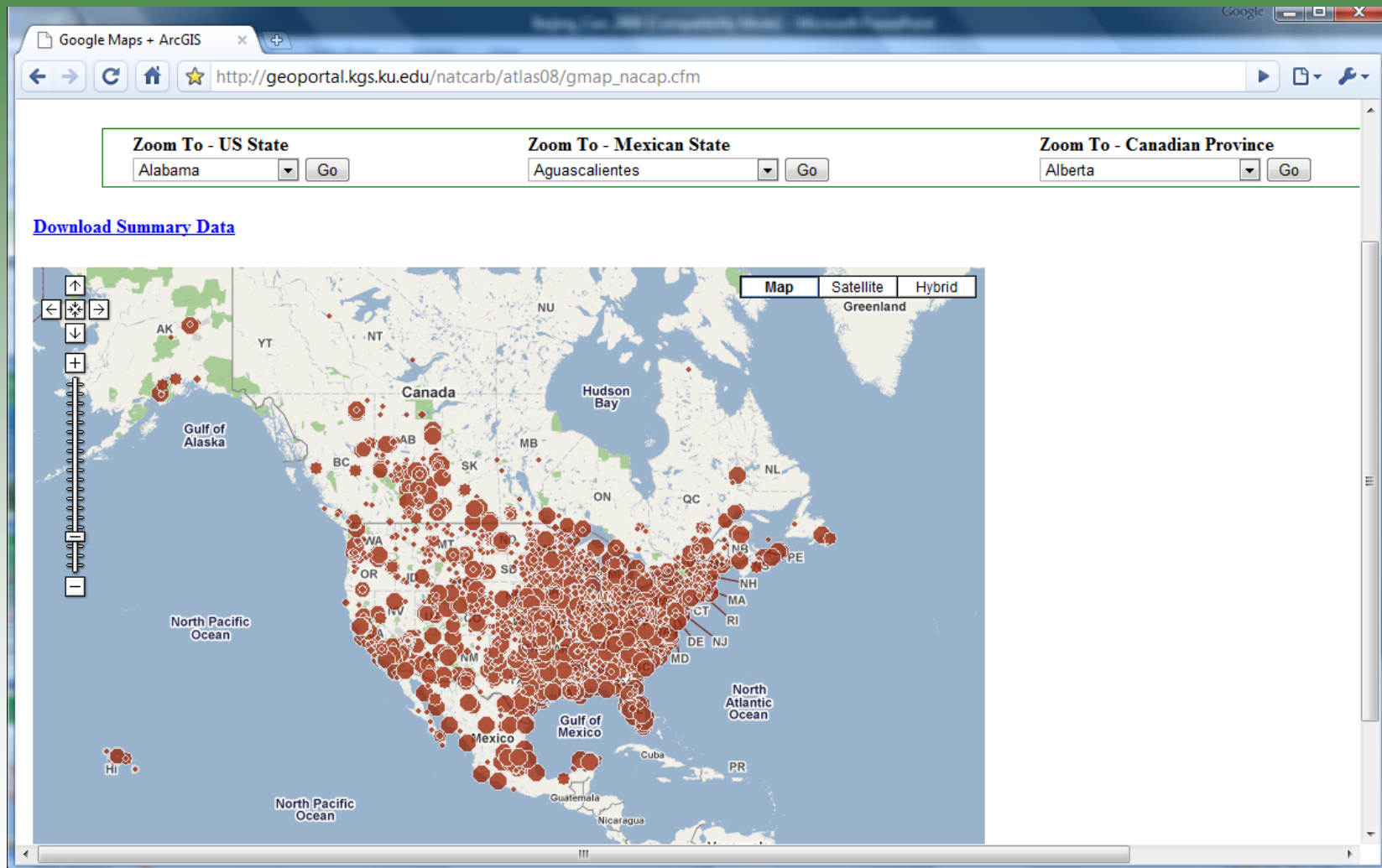
Public
&
Decision Makers

Carbon Cyberinfrastructure CCI-2.0



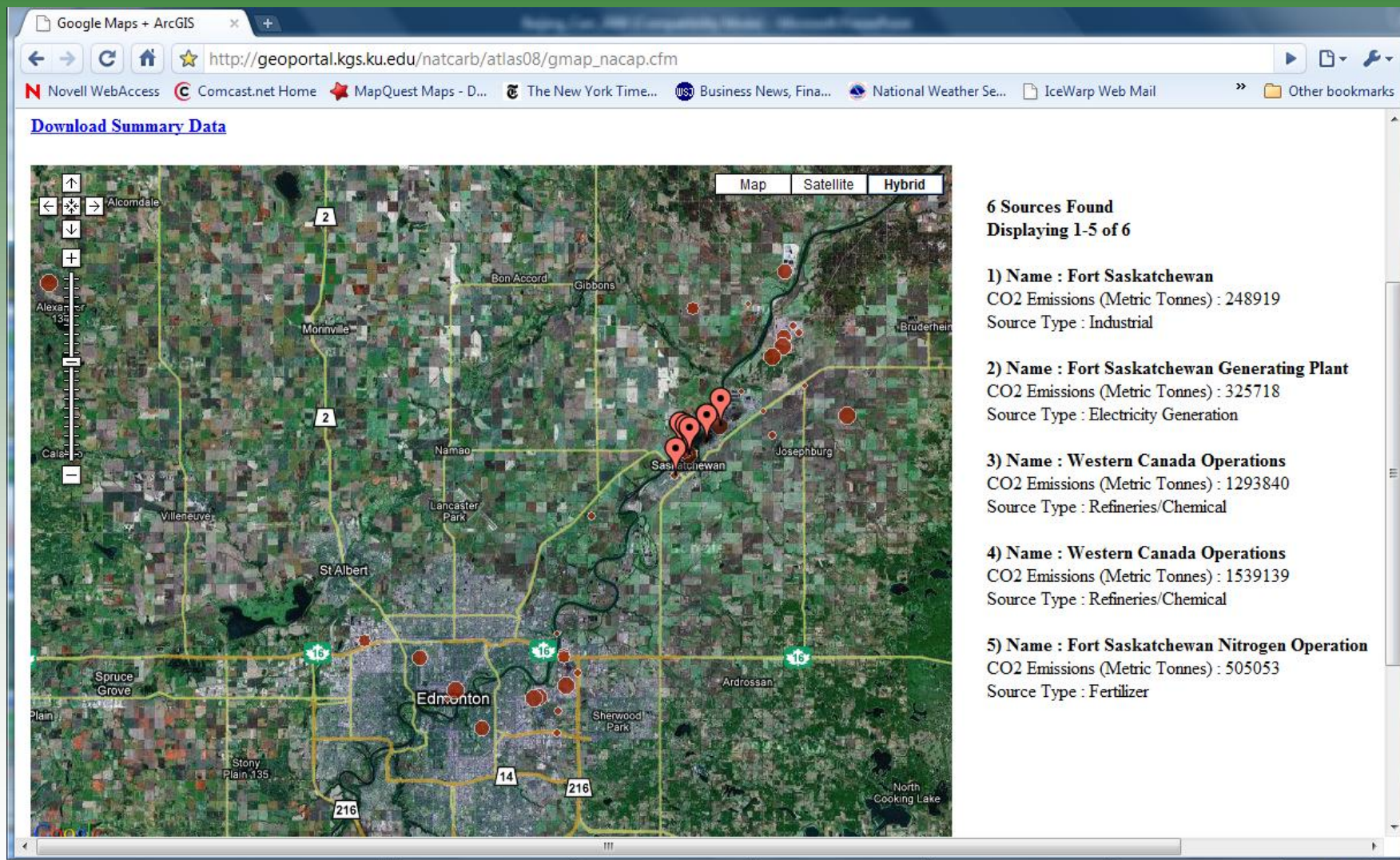
<http://mapwv.gov/shpoTest/shpoTest.html>

North American Atlas



http://geoportal.kgs.ku.edu/natcarb/atlas08/gmap_nacap.cfm

North American Atlas



http://geoportal.kgs.ku.edu/natcarb/atlas08/gmap_nacap.cfm

Demonstration Projects

The screenshot shows a Google Earth application window with a map of Pittsburgh, PA. A web browser window is overlaid on the map, displaying the Alberta Saline Aquifer Project (ASAP) website. The website has a green and blue color scheme. The main header features the ASAP logo and the title 'ALBERTA SALINE AQUIFER PROJECT'. Below the header is a navigation bar with links: 'About the Project', 'About the Participants', 'News', and 'Contact'. The left sidebar contains a list of project phases: 'Project Phases', 'Stakeholder Consultation', 'Safety and Environment', 'Presentations & Videos', and 'Links'. The main content area features a large image of a person in a red hard hat and orange safety vest standing next to a surveying instrument on a tripod in a green field under a blue sky. Below this image is the 'Project Overview' section, which describes the project as an industry initiative led by Enbridge Inc. to identify deep saline aquifers in Alberta for carbon sequestration. It mentions that 37 companies are participating in the first phase. A 'Related Information' section on the right includes a link to 'About Carbon Capture & Sequestration' (PDF - 134KB) and a 'What's New' section with a video link. The bottom of the browser window shows the Google logo and a scale bar indicating 28.40 km.

Google Earth

Pittsburgh, PA

NETL

Alberta Saline Aquifer Pr... x

http://www.albertaasap.com/

Novell WebAccess Comcast.net Home MapQuest Maps - D... The New York Time... Business News, Fina... National Weather Se... Other bookmarks

ASAP

ALBERTA SALINE AQUIFER PROJECT

About the Project About the Participants News Contact

Project Phases

Stakeholder Consultation

Safety and Environment

Presentations & Videos

Links

Project Overview

The Alberta Saline Aquifer Project (ASAP) is an industry initiative being led by Enbridge Inc. to identify deep saline aquifers in Alberta that could be used in a carbon sequestration pilot project. As a true collaborative effort, so far 37 companies are participating in the first phase of the project.

Saline aquifers are underground formations containing brine or salt water that is not suitable for agricultural purposes or for drinking. Once suitable aquifers have been identified, carbon dioxide will be injected into the deep formations, and the integrity of the process will be closely monitored.

Related Information

About Carbon Capture & Sequestration view... (PDF - 134KB)

What's New

Opening remarks made at the April 8, 2009 meeting to discuss the work completed during Phase I of ASAP

video

lat: 55.394077° lon: -114.533367°

28.40 km

CARBON SEQUESTRATION

2010

ATLAS

OF THE
UNITED STATES
AND CANADA



SECOND EDITION

GIS Working Subgroup And NACAP Working Group

- **July 20-21 Morgantown**
 - ~35 participants
- **Migration to New Platform**
 - Demonstration 12/1/2009
 - Operational 2/15/2009
- **Inventory of Available Layers**
 - 10/1/2009
- **Community Site for Sharing**
 - 12/1/2009

GIS Working Subgroup And NACAP Working Group

- **Pre-Atlas Gap Analysis**
 - 1/15/2009
- **Enhancement to Layers**
 - 1/15/2009
- **Basin Outlines**
 - 9/1/2009 Canada & Mexico
 - 10/1/2009 North American
- **Front Ends**
 - 10/1/2009
- **North American Atlas Demo**
 - 11/1/2009

One Gap, Addition or Area of Emphasis

